

**EXHIBIT 1**

**New TV Station  
NTSC Channel 11  
Chisholm, Minnesota**

**Engineering Exhibit  
in Support of Petition for Rulemaking  
to Change City of License from  
International Falls to Chisholm**

September 20, 2000

©2000 All rights reserved.

## New TV Station • NTSC Channel 11 • Chisholm, Minnesota

### Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Channel 11 License, Inc. to prepare an engineering exhibit in support of a Petition for Rulemaking to reallocate NTSC Channel 11 from International Falls, Minnesota, to Chisholm, Minnesota.

### Background

NTSC Channel 11 is currently allocated to International Falls, Minnesota. Channel 11 License, Inc. holds a recently issued construction permit, FCC File No. BPCT-960709KR, to construct new Channel 11 facilities at a site 22.5 kilometers south of International Falls. Omnidirectional operation with a class-maximum peak visual effective radiated power ("ERP") of 316 kW with a center-of-radiation height of 132 meters AGL, 485 meters AMSL, and 137 meets HAAT is authorized.

It is proposed to change the principal community from International Falls, Koochiching County, Minnesota, to Chisholm, St. Louis County, Minnesota. This would involve building the station at a new site 41.7 kilometers north of Chisholm, 89.3 kilometers southeast of International Falls, and 72.2 kilometers southeast of the presently permitted site. Omnidirectional operation with a class-maximum peak visual ERP of 316 kW, but with an increased center-of-radiation height of 183 meters AGL, 600 meters AMSL, and 203 meters HAAT, is proposed. The attached Figure 1 provides a Technical Summary of the proposed facility. Figure 2 shows the location of the proposed "Meadow Brook" site, and Figure 3 shows the proposed antenna elevation. The attached Figure 4 shows the proposed City Grade, Grade A, and Grade B coverages, plus the locations of nearby communities. The attached Figure 5 shows the relation of this site to the permitted site, to International Falls, and to Chisholm.

### Compliance with All FCC Rules

The proposed new site would be fully spaced to all existing U.S. domestic NTSC TV stations, as follows:

<u>Station</u>	<u>Status</u>	<u>Channel</u>	<u>Location</u>	<u>Required Distance</u>	<u>Actual Distance</u>
WDIO-TV	Lic	10	Duluth, MN	95.7 km	134.7 km
KARE	Lic	11	Minneapolis, MN	304.9	311.4
KARE	CP	11	Minneapolis, MN	304.9	311.4
KVLY-TV	Lic	11	Fargo, ND	304.9	331.6
KCCW-TV	Lic	12	Walker, MN	95.7	153.6



## New TV Station • NTSC Channel 11 • Chisholm, Minnesota

There are no co-channel U.S. domestic DTV allotments or applications within 273.6 kilometers of the proposed site, and there are no adjacent-channel DTV allotments or applications within 125 kilometers of the proposed site, and an OET-69 style interference study does not find any DTV Channel 10, 11 or 12 stations with cell distances that would trigger a requirement to study such DTV allotments, applications, permits, or licenses.

### Coverage Comparisons

Comparison of the land U.S. and Canada land areas covered by the permitted International Falls facilities, and the proposed Chisholm facilities, are as follows:

<u>Facility</u>	<u>U.S. Land Area</u>	<u>Canada Land Area</u>
CP, BPCT-960709JR International Falls	13,302 sq. km	7,082 sq. km
Chisholm facility, Meadow Brook site	23,122	1,089

Therefore, for the permitted International Falls facilities, 34.7% of the coverage area would fall in Canada, whereas for the proposed Chisholm facilities only 4.5% of the coverage area would fall in Canada.

The U.S. Grade B population served by the permitted International Falls facilities is 19,976 persons (1990 Census), and the U.S. Grade B population that would be served by the proposed Chisholm facility would be 122,669 persons (1990 Census). Thus, reallocating the new Channel 11 facilities from International Falls to Chisholm would increase the U.S. population served by more than six-fold.

### Reduction in White Area

Neither International Falls nor Chisholm has a local TV station, so an NTSC Channel 11 allocation for Chisholm would be equivalent to the existing NTSC Channel 11 allotment for International Falls, insofar as they both represent each community's first local TV service. However, reallocation of NTSC Channel 11 from International Falls to Chisholm would be in the public interest because such action would result in a net reduction of the "white area" that would otherwise exist for the International Falls allotment with the existing CP. The Chisholm versus International Falls coverage areas are shown by the attached Figure 6A. The attached Figure 6B shows the reduction in white area for the permitted International Falls facilities, which represent a U.S. land area of 3,582 square kilometers and a U.S. population of 8,392 persons (1990 Census). The attached Figure 6C shows the reduction in white area for the proposed Chisholm facilities,



## **New TV Station • NTSC Channel 11 • Chisholm, Minnesota**

which represent a U.S. land area of 3,781 square kilometers and a U.S. population of 9,325 persons (1990 Census). A new NTSC Channel 11 at the Meadow Brook site, serving Chisholm, is therefore superior to the permitted facilities serving International Falls because the Chisholm facilities would eliminate 199 more square kilometers of white area, and would reduce the white area population by 933 more persons, than would occur for the International Falls permitted facilities.

### **Increase in Service to Gray Area**

As shown by the attached Figure 7A (for the permitted International Falls facility) and by the attached Figure 7B (for the proposed Chisholm facility), the increase in service to gray area (area currently served by one existing TV signal) would be greater for Chisholm than it would be for International Falls. The gray area that would be served by the permitted International Falls facility has a U.S. population and U.S. land area of 1,047 persons (1990 Census) and 1,055 square kilometers, whereas the gray area that would be served by the proposed Chisholm facility would have a U.S. population and U.S. land area of 76,665 persons (1990 Census) and 7,672 square kilometers. Accordingly, as shown by the attached Figure 7C, the gray area that would be served by the Chisholm facility compared to the International Falls facility would have a population of 75,618 persons (1990 Census) and a land area of 6,617 square kilometers.

### **No City Grade Overlap with KBJR(TV)**

As shown by the attached Figure 8, the proposed Chisholm NTSC Channel 11 facilities would not have any City Grade overlap with TV Station KBJR, NTSC Channel 6, Superior, Wisconsin.

### **Canadian NTSC Considerations**

Although the proposed Meadow Brook site would increase the distance to the Canadian border by 42 kilometers, from 16 kilometers to 58 kilometers, the proposed site would create a new short spacing to an unbuilt Canadian NTSC Channel 12 allotment for Lac La Croix, Ontario. However, it can be demonstrated that the proposed Chisholm facilities would have less interference to Lac La Croix, and less interference to Station CBWFT6, NTSC Channel 11 at Pine Falls, Manitoba, than would exist if maximum height and power NTSC Channel 11 facilities were built at the allotted International Falls reference coordinates. Therefore, it is reasonable to expect Canada to consent to the proposed reallocation.

Annex II, Table 1, of the January 5, 1994, U.S.-Canada TV Agreement ("Canadian NTSC TV Agreement") requires a separation of at least 305 kilometers for co-channel VHF highband TV stations in Zone II and Section 3.3.1 requires a separation of at least 95 kilometers for adjacent-



## **New TV Station • NTSC Channel 11 • Chisholm, Minnesota**

channel stations. For the NTSC Channel 11 International Falls allotment, the closest co-channel Canadian TV station is CBWFT6, Pine Falls, Manitoba, at 310.1 kilometers, the closest lower adjacent-channel is CBWET, Red Lake, Ontario, at 271.0 kilometers, and the closest upper adjacent-channel Canadian TV station is the vacant Channel 12 allotment for Lac La Croix, Ontario, at 95.8 kilometers.

For the proposed Meadow Brook site for a new NTSC Channel 11 TV station serving Chisholm instead of International Falls, the co-channel spacing to CBWFT6 increases to 395.6 kilometers, the lower adjacent-channel spacing to CBWET increased to 357.3 kilometers, but the upper adjacent-channel spacing to the unbuilt Lac La Croix allotment shortens to 81.6 kilometers. Therefore, even though the Meadow Brook site is almost four times further from the Canadian border than is the permitted site near International Falls, the Meadow Brook site, although fully spaced to all U.S. NTSC stations and allotments, would be 13.4 kilometers short-spaced to the vacant NTSC Channel 12 allotment for Lac La Croix, as shown by the attached Figure 9A.

In addition to a separation requirement, the Canadian NTSC TV Agreement requires that F(50,10) 36 dBu interfering contour of a U.S. VHF highband station clear an 82-kilometer radius circle centered on the protected Canadian VHF highband TV station. As shown by the attached Figure 9B, the International Falls NTSC Channel 11 allotment would fail this second requirement at 316 kW ERP, but would meet the requirement if radiation towards CBWFT6 were suppressed by 3.5 dB. Since a directional antenna with at least 3.5 dB of suppression towards CBWFT6 would still allow the class maximum ERP in other directions, this means that towards the vacant Channel 12 allotment at Lac La Croix and ERP of 316 kW would be allowed, since the International Falls NTSC Channel 11 allotment site is fully spaced to the Lac La Croix NTSC Channel 12 allotment. Therefore, it is valid to compare the International Falls allotment with an ERP of 316 kW and an effective height of 600 meters to the proposed 316 kW ERP at 203 meters HAAT Chisholm facilities at the Meadow Brook site.

Because the proposed Chisholm facilities would have less radiation towards Canada than would a maximum height and power facility constructed at the International Falls reference coordinates, it is logical that Industry Canada would consent to the proposed Meadow Brook site. Section 2.8 of the Canadian TV Agreement allows an ERP of up to 316 kW for U.S. VHF highband TV stations, and Section 3.2.4 allows an effective height of up to 600 meters before power derating must commence (the FCC rules allow a slightly higher effective height of 610 meters, but in this case the lower HAAT limit of the Canadian NTSC TV Agreement is controlling). The attached Figures 9C and 9D show the Grade B contour for a maximum power and height (316 kW ERP at 600 meters HAAT) NTSC Channel 11 facility at the reference coordinates for the NTSC Channel 11



## **New TV Station • NTSC Channel 11 • Chisholm, Minnesota**

International Falls allotment (48° 36' 00" N, 93° 25' 00" W, NAD27); as can be seen, the Chisholm facility would have less radiation towards Canada than would the International Falls allotment facilities, and therefore Industry Canada should accept the proposal (unlike the situation for a co-channel proposal, which must meet both a spacing and a contour criteria, the Canadian NTSC Agreement is silent on what interfering contour level should be used if an adjacent-channel spacing requirement is not met). However, if the Grade B contour of International Falls allotment extends further into Canada than does the Grade B contour of the Chisholm (Meadow Brook site) NTSC Channel 11 facilities, it follows that any interfering contour from the allotment would likewise extend deeper into Canada than would the Chisholm facility's interfering contour.

### **Canadian DTV Considerations**

There are no adjacent-channel full-service (Class A, B, C, VU or VL) Canadian DTV allotments within 400 kilometers of the proposed site, but there are two co-channel DTV allotments, one a Class A allotment for Atikokan, Ontario, and the other a Class B allotment for Steinbach, Manitoba. For the Atikokan DTV Channel 11 Class A allotment, the spacing to the Meadow Brook/Chisholm site would slightly decrease, from 142.9 kilometers to 139.6 kilometers; however, the spacing to the Steinbach DTV Channel 11 Class B allotment would increase, from 266.0 kilometers to 332.1 kilometers. Until a U.S.-Canada DTV Letter of Understanding ("LOU") is finalized, the exact allocation and interference conditions cannot be determined; however, the same argument that applies to the Canadian NTSC allocation conditions, namely that the proposed Meadow Brook site Chisholm facilities would radiate less energy into Canada than would a maximum height and power NTSC Channel 11 at the already allotted International Falls reference coordinates, and for which no additional Canadian approval is believed to be required, again therefore represents less of an interference threat any Canadian DTV allotments.

### **Aeronautical Considerations**

An application for the proposed new Meadow Brook tower was filed with the Great Lakes Region of the FAA on February 28, 2000. Aeronautical Study No. 00-AGL-1244-OE has been assigned. The proposed tower is currently undergoing a more detailed study by the FAA.

### **Summary**

NTSC Channel 11 could be moved from International Falls, Minnesota, to Chisholm, Minnesota, in compliance with all U.S. domestic spacing requirements. NTSC Channel 11 at Chisholm would continue to represent a community's first local TV service. The U.S. land area and U.S. population that would be served would increase significantly compared to the U.S. land areas and U.S.



## New TV Station • NTSC Channel 11 • Chisholm, Minnesota

population that would be served by the permitted International Falls facilities. The proposed Chisholm facilities would result in less remaining “white area” and greater remaining “gray area” than would be the case for the permitted International Falls facility. Finally, the proposed Chisholm facility represents less of an interference threat to the closest co-channel Canadian NTSC station, and less of an interference threat to an unbuilt Canadian NTSC Channel 12 allotment for Lac La Croix, Ontario, than would maximum height and power NTSC Channel 11 facilities built at the allotted International Falls coordinates.

### List of Figures

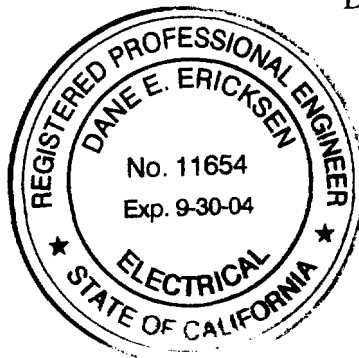
In carrying out these engineering studies, the following attached figures were prepared under my direct supervision:

1. Technical Summary of the proposed facilities
2. Map showing the proposed “Meadow Brook” site
3. Antenna elevation drawing
4. Map showing proposed Chisholm City Grade, Grade A, and Grade B contours
5. Map showing permitted & proposed sites and permitted and proposed coverage contours
6. White area study maps
7. Gray area study maps
8. Map showing Chisholm and KBJR(TV) City Grade contours
9. Canadian NTSC allocation maps.



Dane E. Ericksen, P.E.

September 20, 2000



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

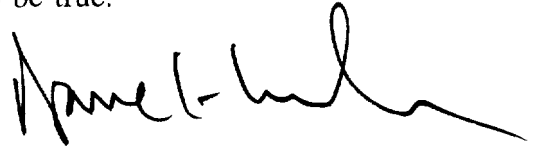
## Affidavit

State of California  
County of Sonoma

ss:

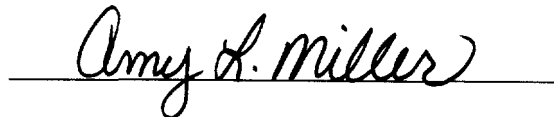
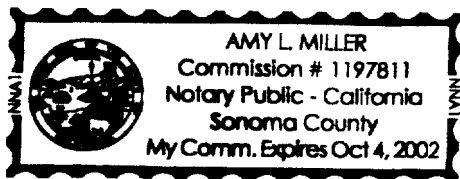
Dane E. Ericksen, being first duly sworn upon oath, deposes and says:

1. That he is a qualified Registered Professional Engineer, holds California Registration No. E-11654, which expires on September 30, 2004, and is employed by the firm of Hammett & Edison, Inc., Consulting Engineers, with offices located near the city of San Francisco, California,
2. That he graduated from California State University, Chico, in 1970, with a Bachelor of Science Degree in Electrical Engineering, was an employee of the Field Operations Bureau of the Federal Communications Commission from 1970 to 1982, with specialization in the areas of FM and television broadcast stations and cable television systems, and has been associated with the firm of Hammett & Edison, Inc., since October 1982,
3. That the firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by KBJR License, Inc. to prepare an engineering exhibit in support of a Petition for Rulemaking to reallocate NTSC Channel 11 from International Falls, Minnesota, to Chisholm, Minnesota,
4. That such engineering work has been carried out by him or under his direction and that the results thereof are attached hereto and form a part of this affidavit, and
5. That the foregoing statement and the report regarding the aforementioned engineering work are true and correct of his own knowledge except such statements made therein on information and belief and, as to such statements, he believes them to be true.



Dane E. Ericksen, P.E.

Subscribed and sworn to before me this 20th day of September, 2000



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Affidavit



**New TV Station • NTSC Channel 11 • Chisholm, Minnesota**

**Engineering Specifications of Proposed NTSC Operation**

**A. Tower**

FCC Tower Registration No.	To be applied for	
“Meadow Brook” site, 8.9 miles West of Cook, St. Louis County, Minnesota		
Geographical Coordinates	<u>source: NAD83</u>	<u>derived: NAD27</u>
	47° 51' 38.7" N	47° 51' 39" N
	92° 56' 43.6" W	92° 56' 43" W
Elevation of site above mean sea level	417.6 m	
Overall tower height above ground level	195.7 m	
Overall tower height above mean sea level	613.3 m	

**B. Effective Heights**

Height of radiation center above ground level	182.9 m
Height of radiation center above mean sea level	600.5 m
Height of average terrain above mean sea level (8-radial average)	397.2 m
Height of radiation center above average terrain	203.3 m

**C. Antenna System**

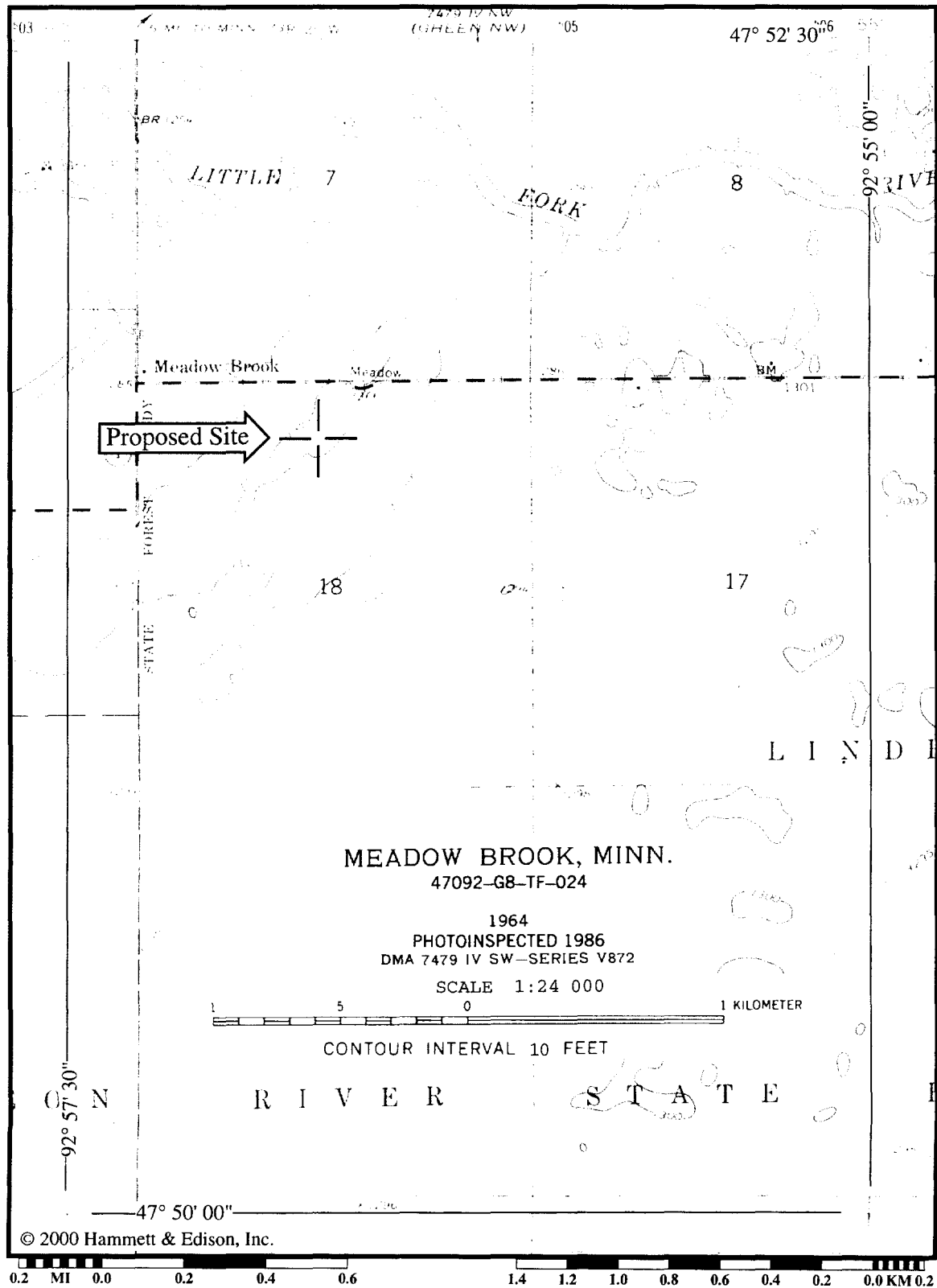
Make/model	Dielectric, Type TW-12A11	traveling wave
Direction of main lobes		omnidirectional
Polarization		horizontal
Electrical beam tilt		0.5°
Mechanical down tilt		none
Transmission line	Dielectric, 6 <sup>1</sup> / <sub>8</sub> -inch 75-ohm coaxial	200.3 m

**D. Operation**

Channel	11
Transmitter power output	29.1 kW
Transmission line loss	90.5%
Maximum antenna gain	12
Maximum effective radiated power	316 kW
Antenna gain in horizontal plane	11.52
Maximum effective radiated power in horizontal plane	303 kW

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Proposed Site

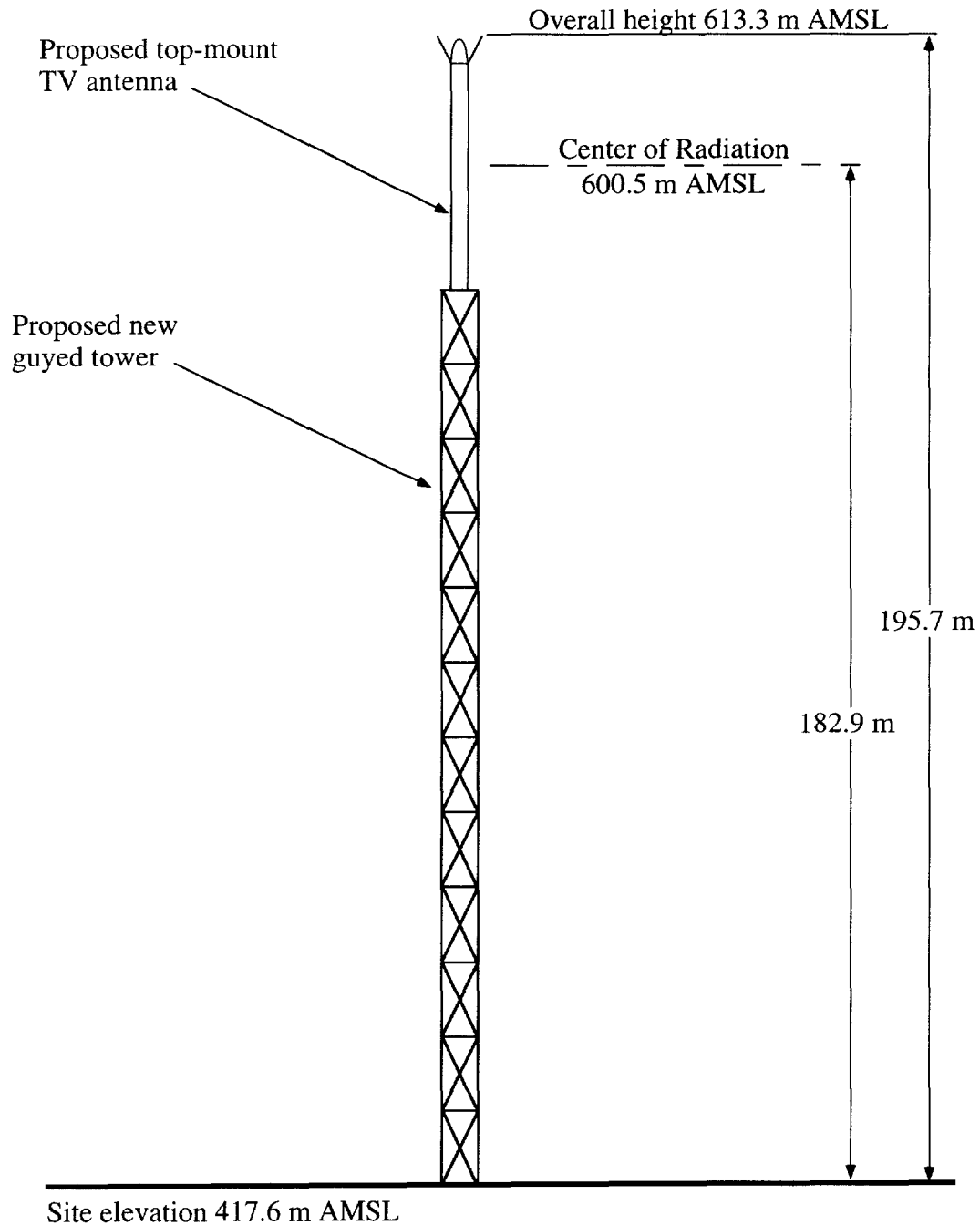


HAMMETT & EDISON, INC.  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 2

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Antenna Elevation

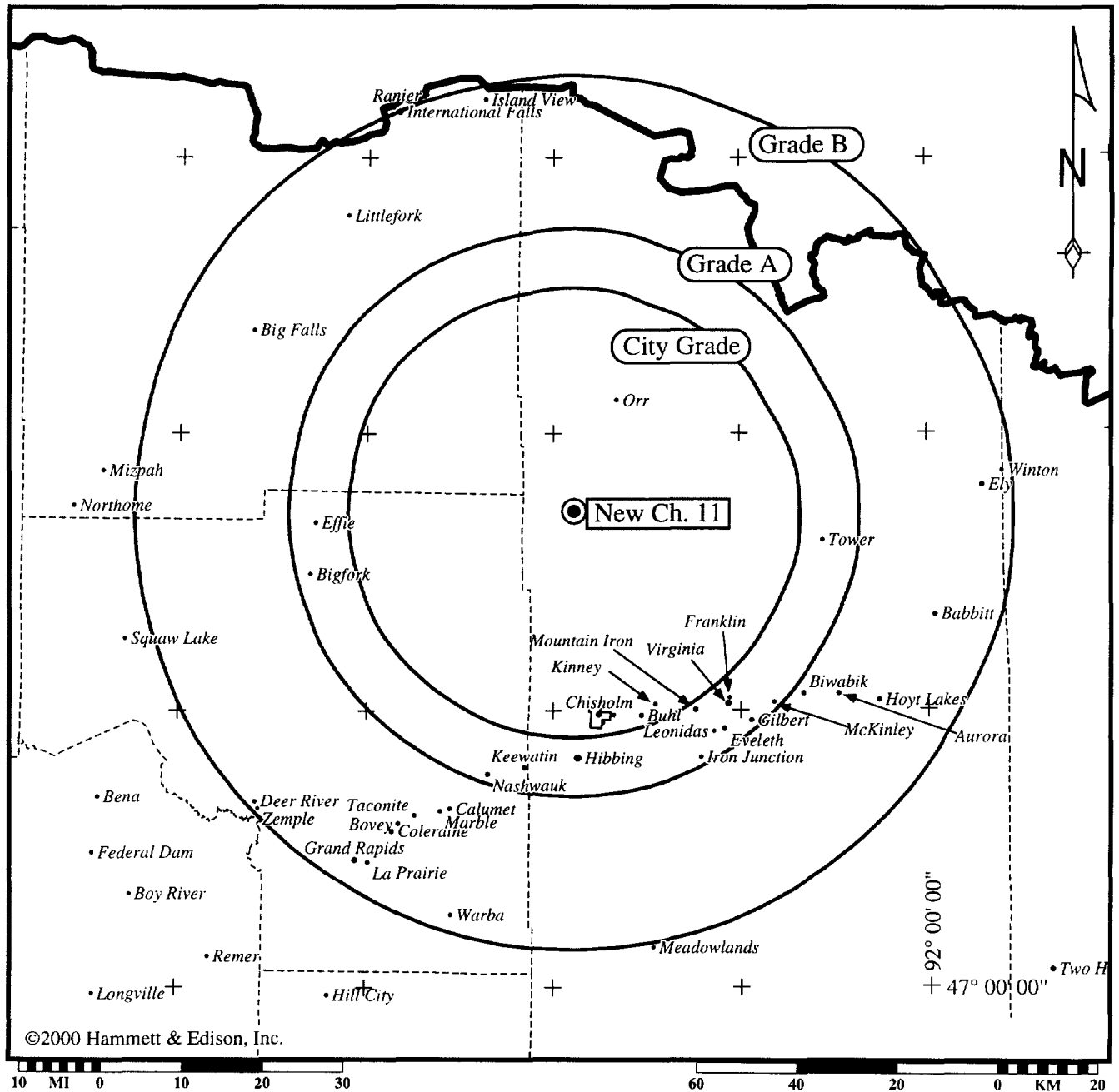


Geographical Coordinates    47° 51' 39" N  
(NAD27)                            92° 56' 43" W

Drawing not to scale.  
Tower to be painted and lighted  
as required by the FAA and FCC.

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

FCC City Grade, Grade A, and Grade B Contours  
 Chisholm "Meadow Brook" Site  
 316 kW ERP Omnidirectional at  
 183 meters AGL, 600 meters AMSL, 203 meters HAAT



Lambert conformal conic map projection. Geographic coordinate marks shown at 30-minute increments. City names and locations from U.S. Census Tiger data.

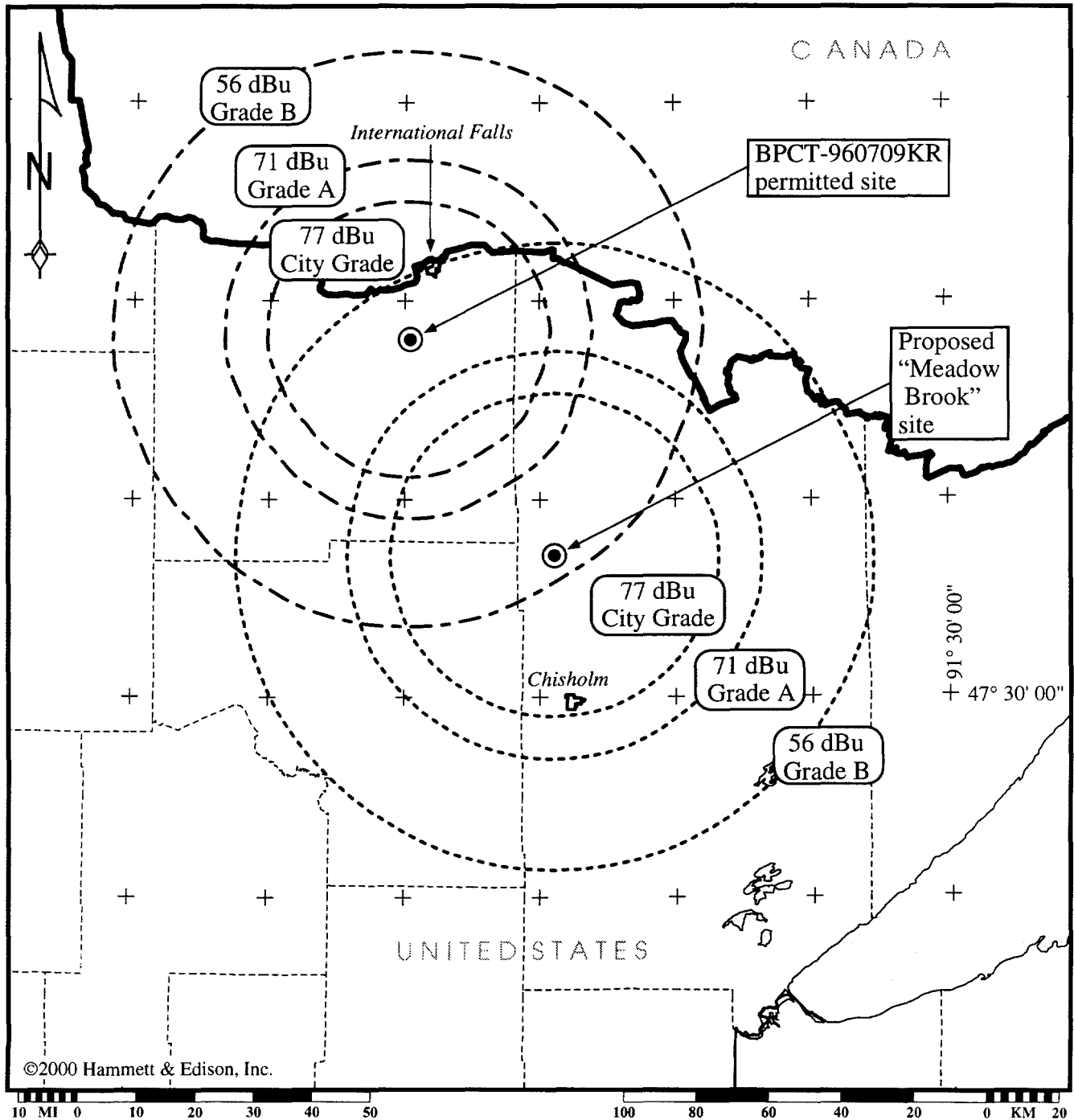


**HAMMETT & EDISON, INC.**  
 CONSULTING ENGINEERS  
 SAN FRANCISCO

000815  
 Figure 4

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Permitted vs. Proposed Sites  
and Coverage Contours



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from 1995 U.S. Census Bureau TIGER data. Geographic coordinate marks shown at 30-minute increments.

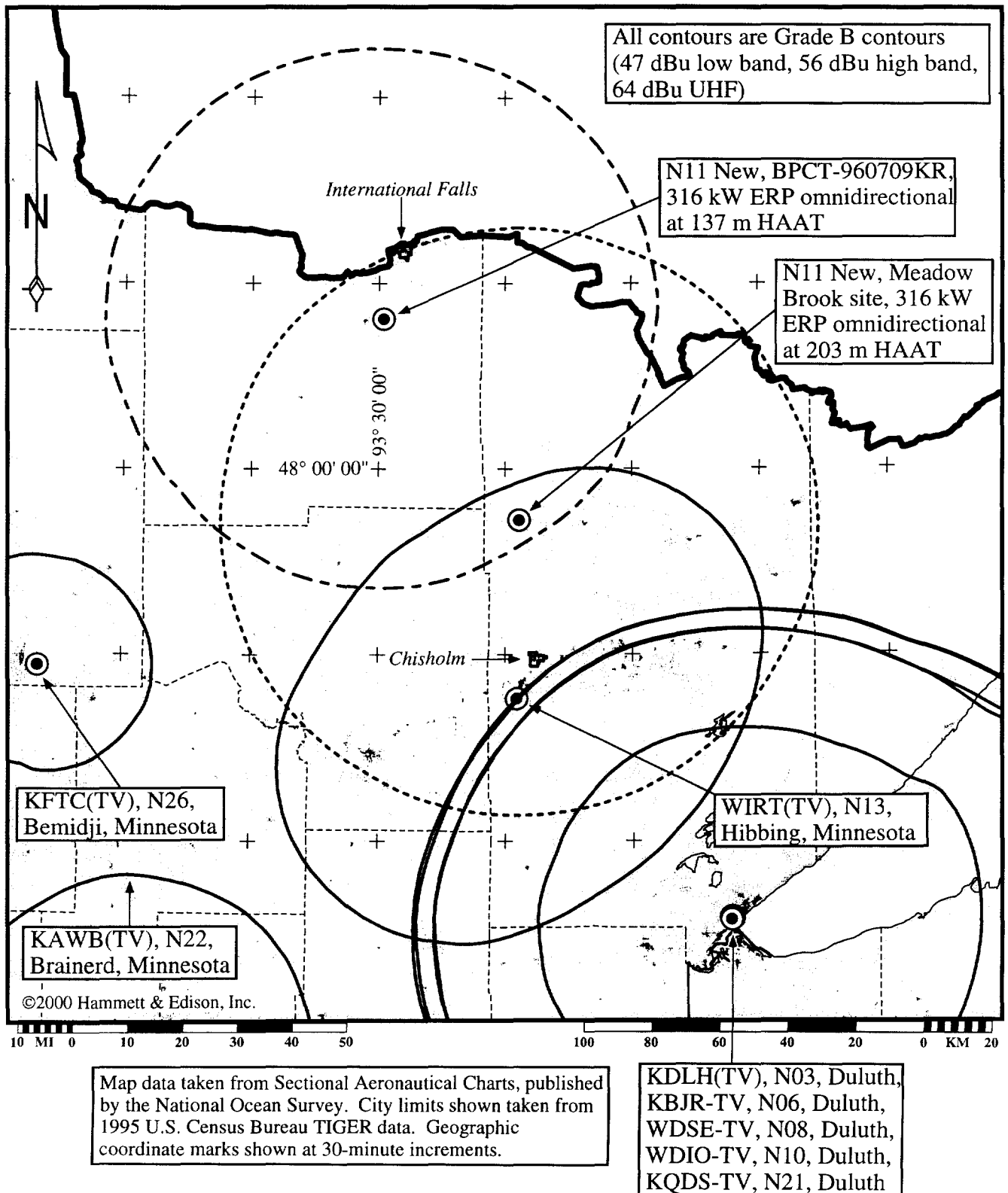


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 5

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

White Area Study for New NTSC Channel 11  
Relocated from International Falls to Chisholm

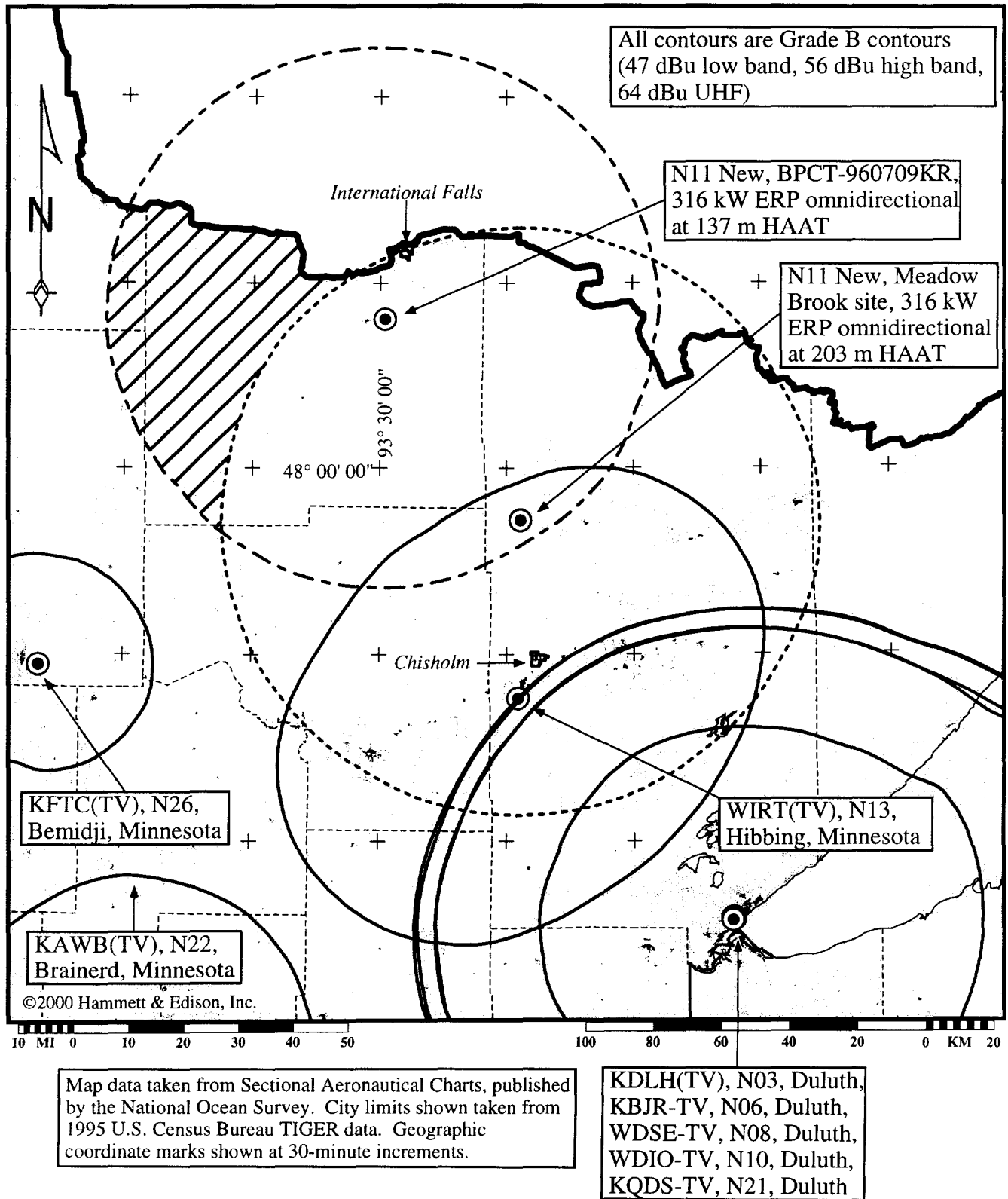


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 6A

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

White Area Study for New NTSC Channel 11  
Relocated from International Falls to Chisholm  
"White Area" Increase

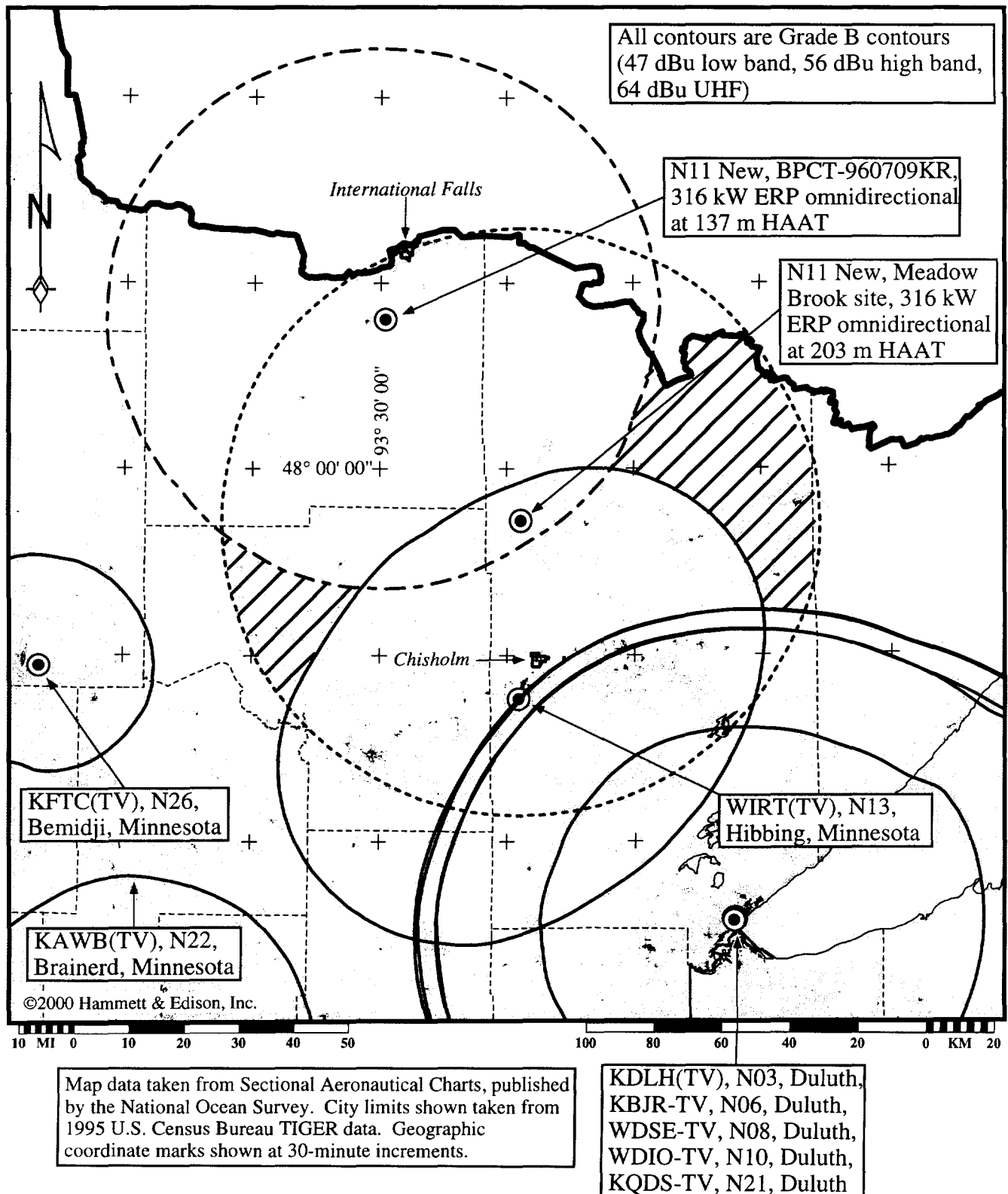


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 6B

# New TV Station • NTSC Channel 11 • Chisholm, Minnesota

## White Area Study for New NTSC Channel 11 Relocated from International Falls to Chisholm "White Area" Decrease



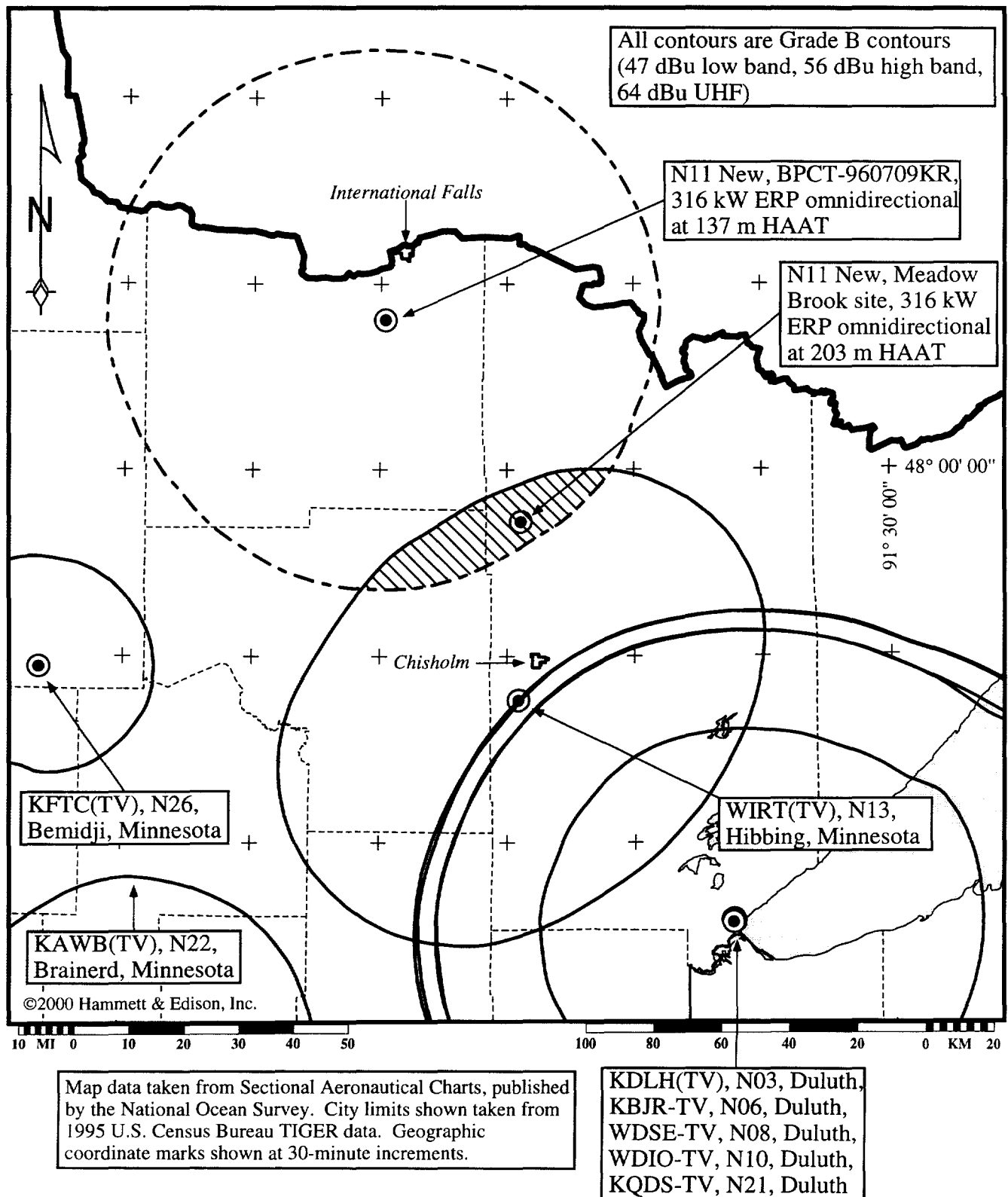
**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 6C



New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Gray Area Served by Permitted International Falls Facilities

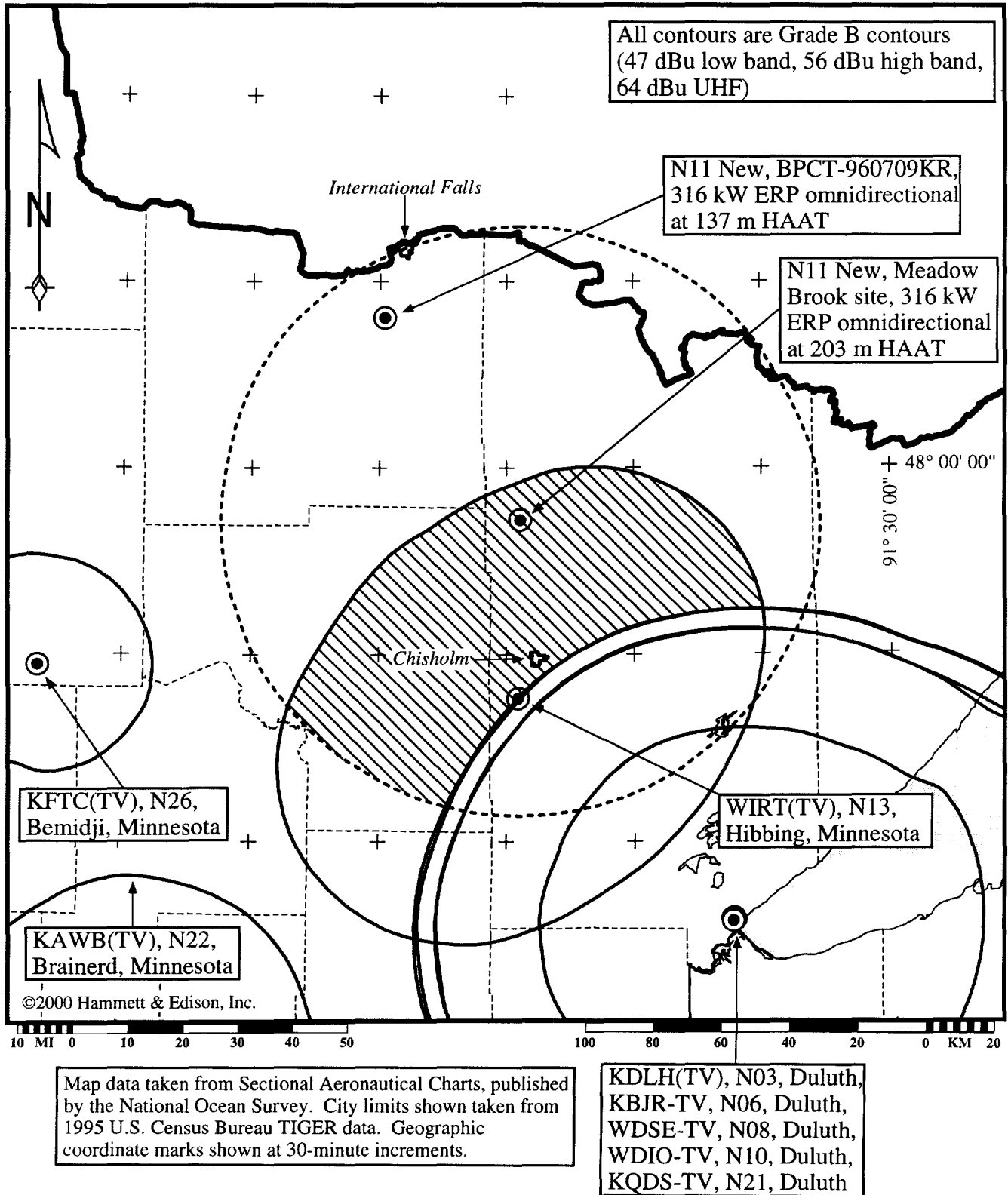


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 7A

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Gray Area Served by Proposed Chisholm "Meadow Brook" Site Facilities



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 7B

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Net Gain in Service to "Gray Area"  
Proposed Chisholm Facility  
vs.

Permitted International Falls Facility

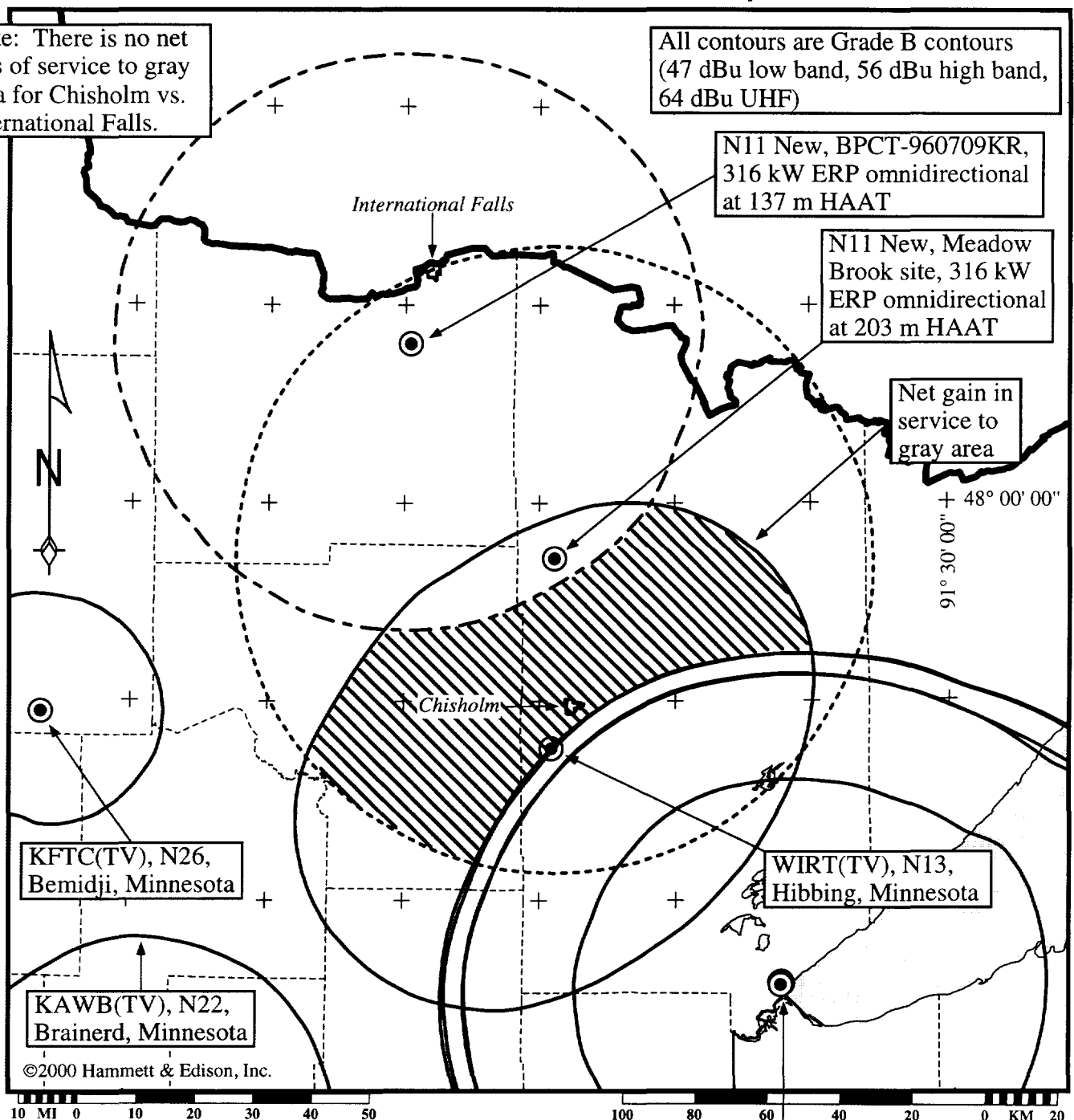
Note: There is no net loss of service to gray area for Chisholm vs. International Falls.

All contours are Grade B contours  
(47 dBu low band, 56 dBu high band,  
64 dBu UHF)

N11 New, BPCT-960709KR,  
316 kW ERP omnidirectional  
at 137 m HAAT

N11 New, Meadow  
Brook site, 316 kW  
ERP omnidirectional  
at 203 m HAAT

Net gain in  
service to  
gray area



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from 1995 U.S. Census Bureau TIGER data. Geographic coordinate marks shown at 30-minute increments.

KDLH(TV), N03, Duluth,  
KBJR-TV, N06, Duluth,  
WDSE-TV, N08, Duluth,  
WDIO-TV, N10, Duluth,  
KQDS-TV, N21, Duluth

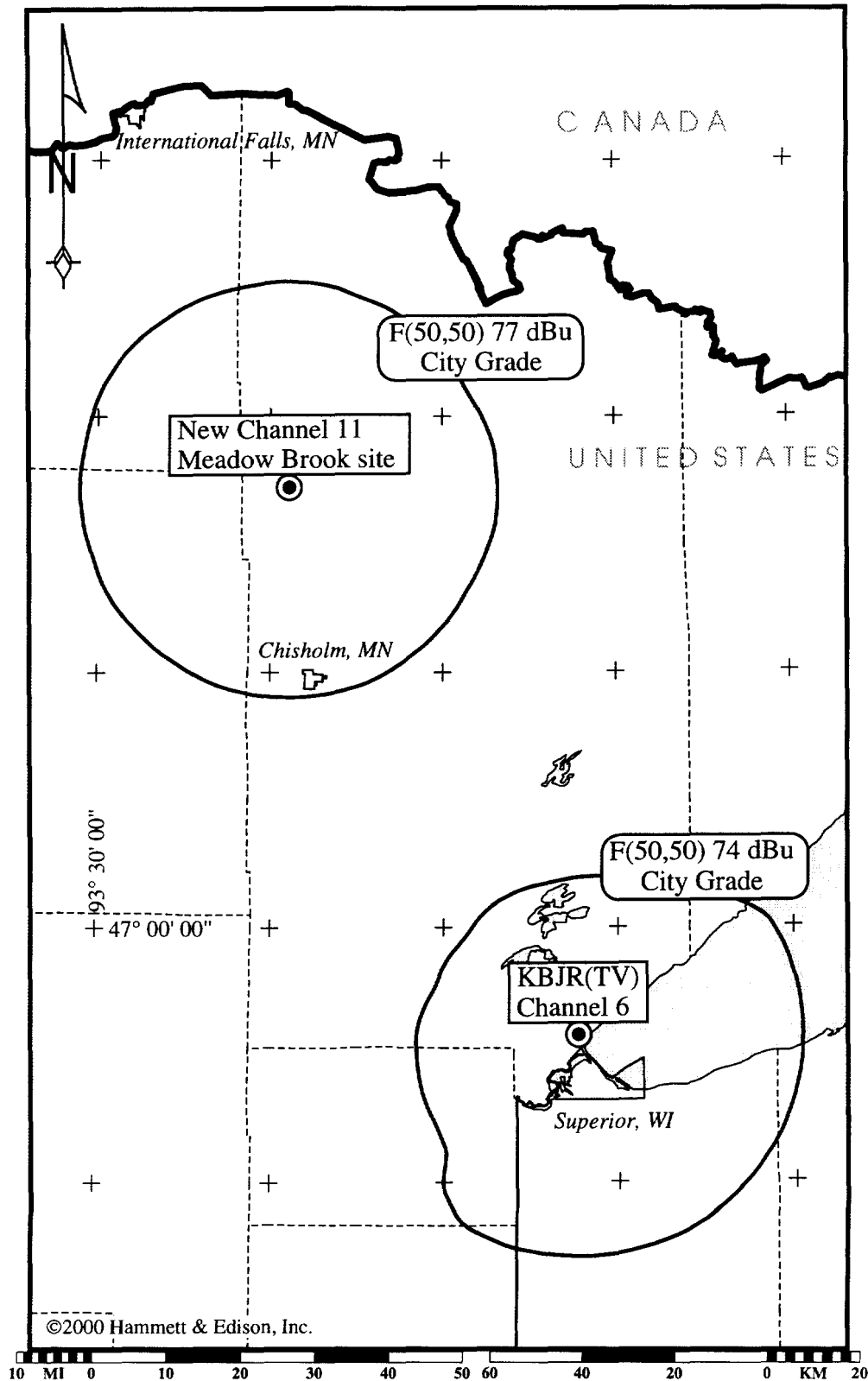


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 7C

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

City Grade Contours for Proposed Chisholm  
NTSC Channel 11 Station and  
TV Station KBJR, NTSC Channel 6, Superior, Wisconsin



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from 1995 U.S. Census Bureau TIGER data. Geographic coordinate marks shown at 30-minute increments.

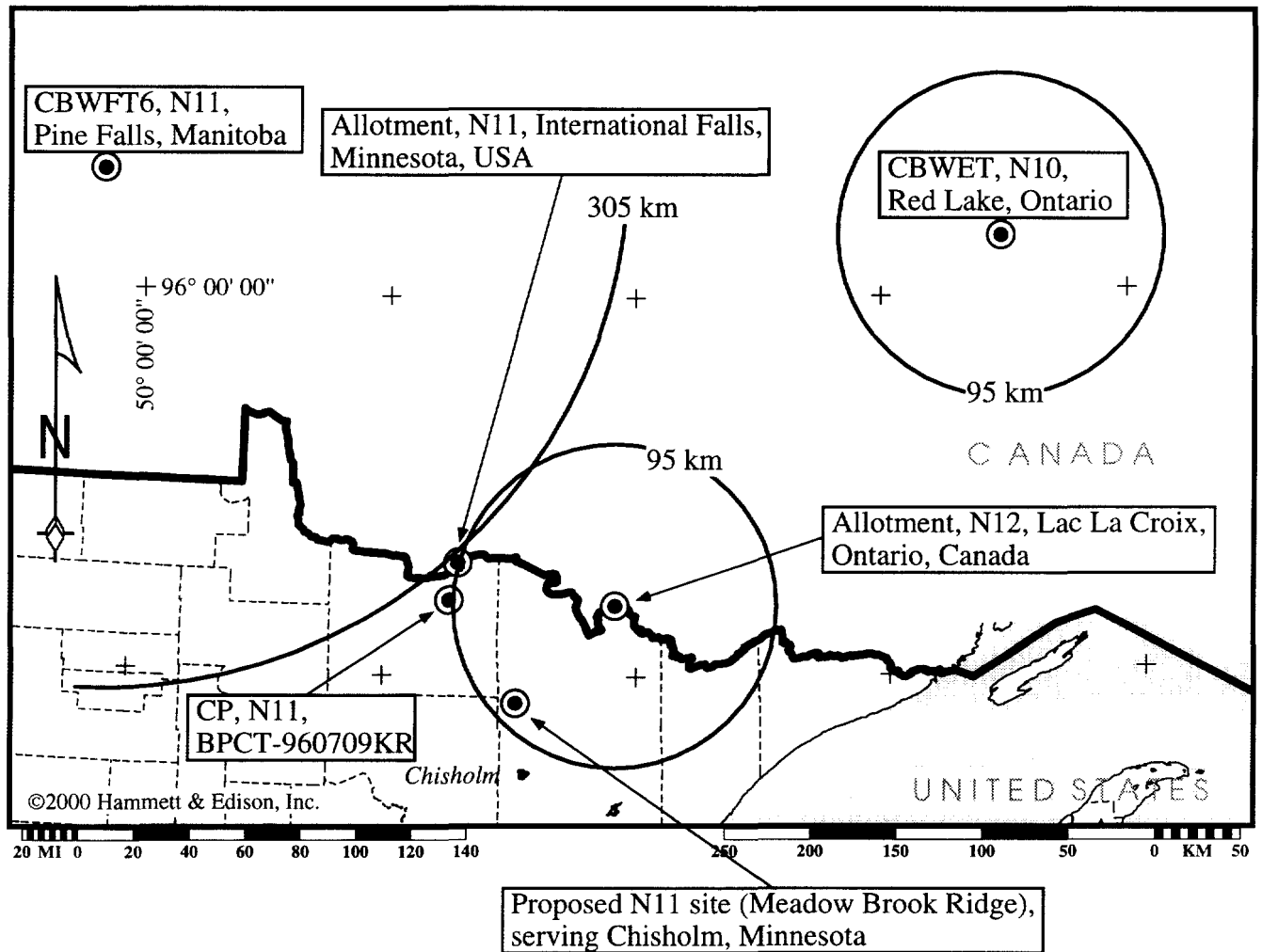


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 8

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

Canadian NTSC Allocation Conditions



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from 1995 U.S. Census Bureau TIGER data. Geographic coordinate marks shown at 60-minute increments.

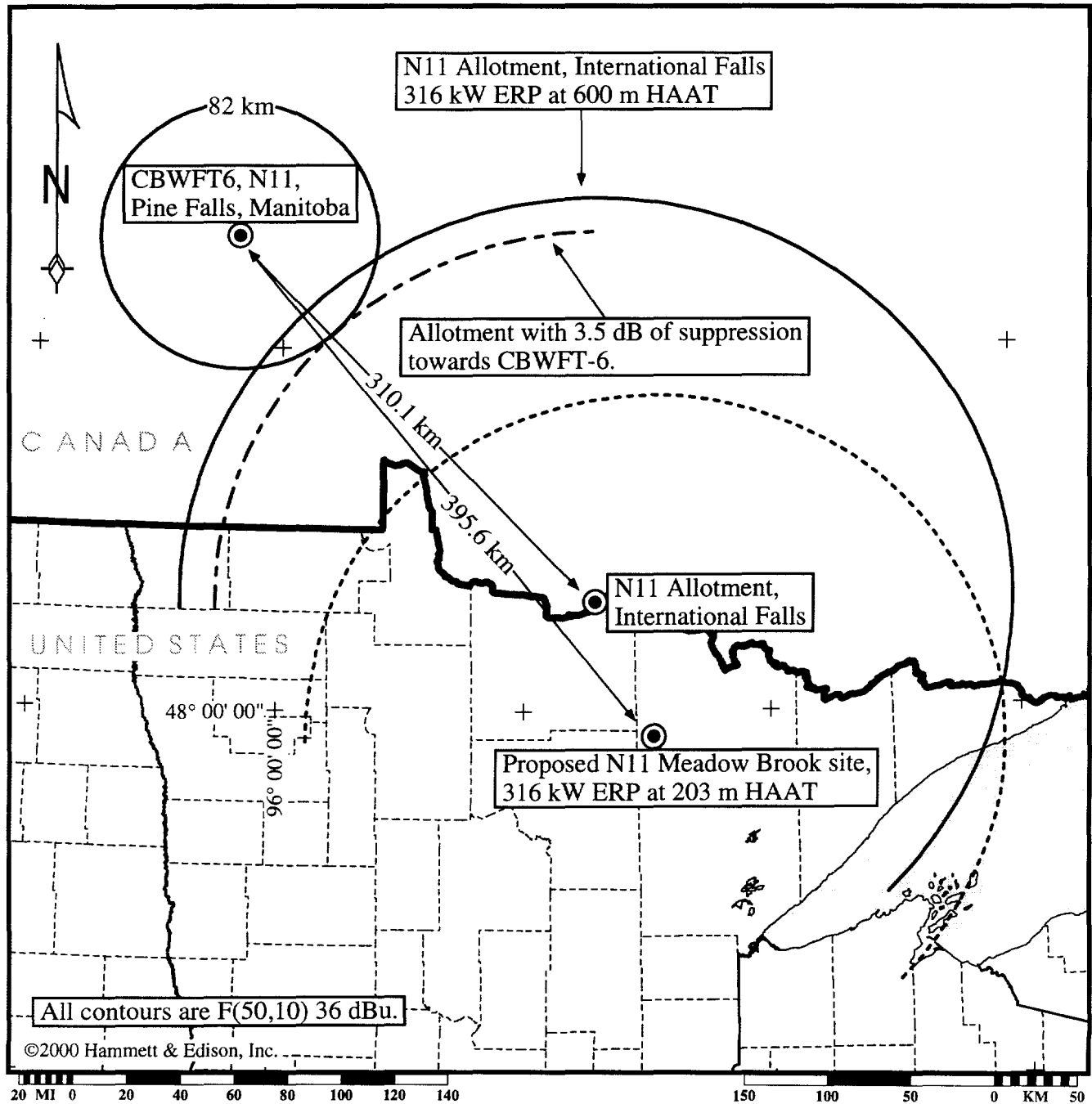


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 9A

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

CBWFT6, NTSC Channel 11, Pine Falls, Manitoba  
Contour Protection



Map data taken from Sectional Aeronautical Charts,  
published by the National Ocean Survey. Geographic  
coordinate marks shown at 120-minute increments.

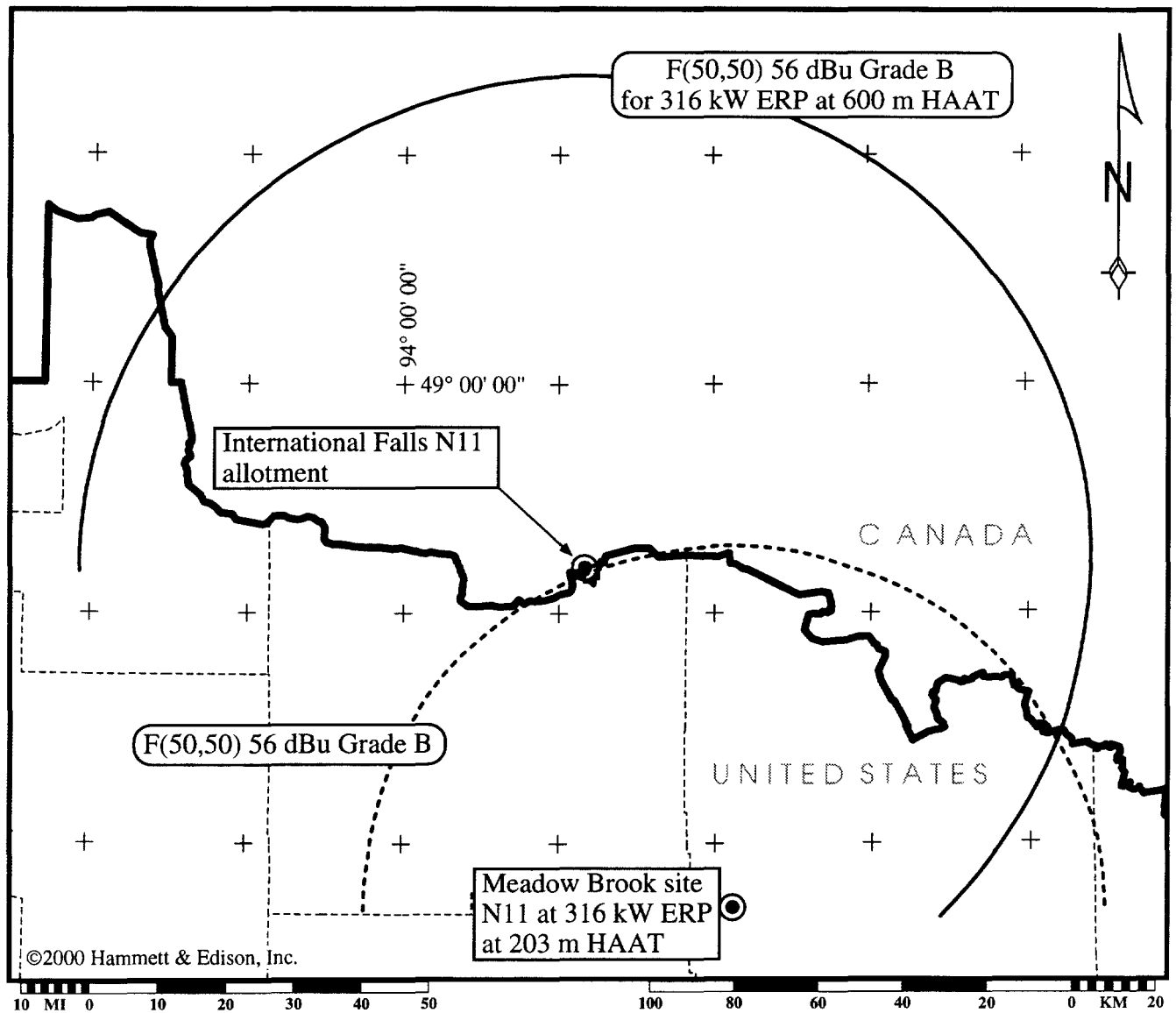


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 9B

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

International Falls NTSC Allotment Grade B Contour  
vs.  
Proposed Chisholm Grade B Contour



Map data taken from Sectional Aeronautical Charts, published  
by the National Ocean Survey. Geographic coordinate marks  
shown at 30-minute increments.

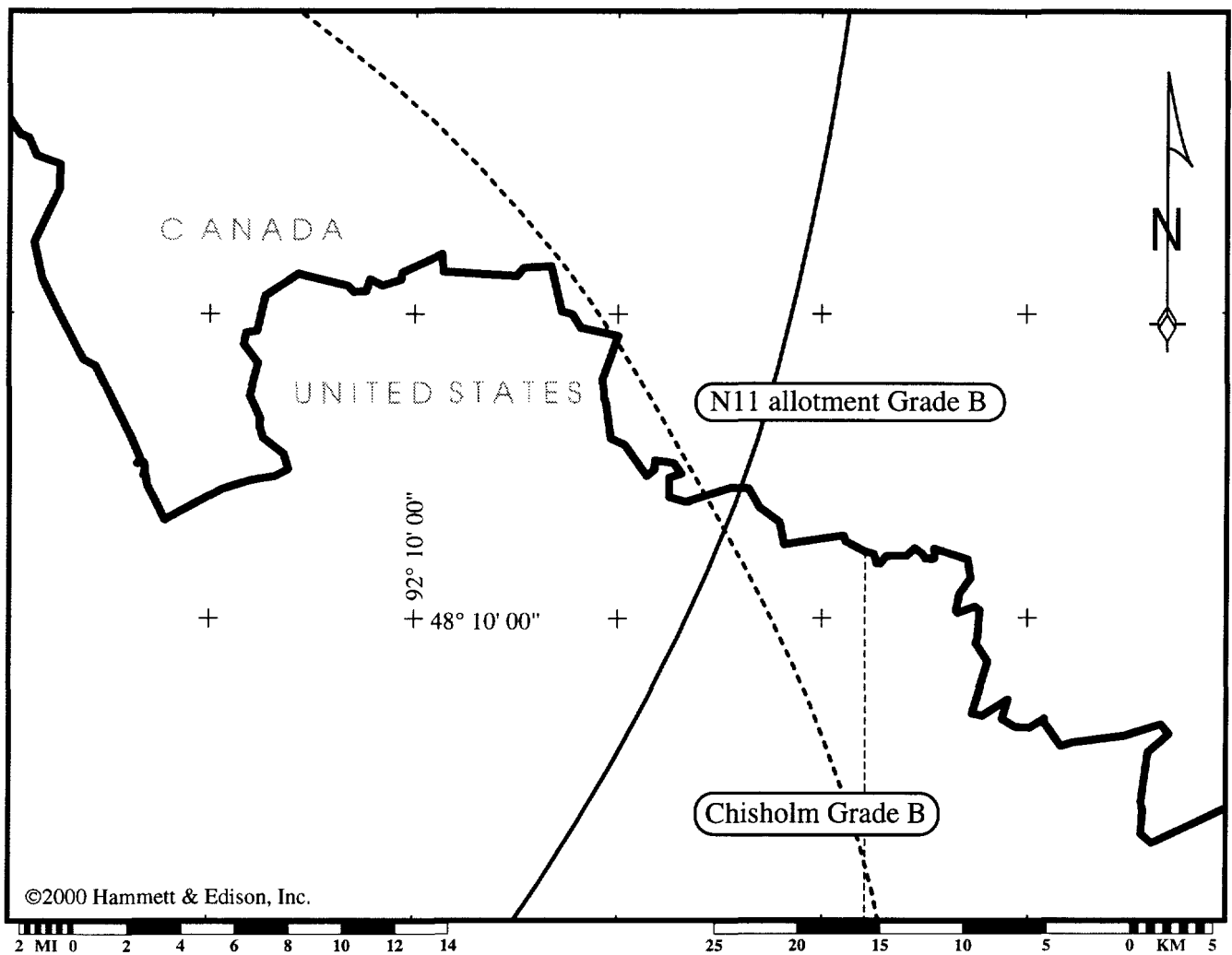


**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

000815  
Figure 9C

New TV Station • NTSC Channel 11 • Chisholm, Minnesota

International Falls NTSC Allotment Grade B Contour  
vs.  
Proposed Chisholm Grade B Contour



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 10-minute increments.